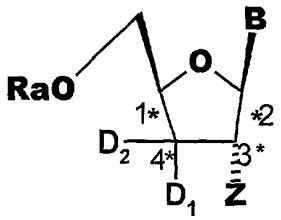
CLAIMS

We claim:

1. A method for the treatment or prevention of an hepatitis C infection in a host comprising administering a therapeutically effective amount of a compound having the formula Ib or a pharmaceutically acceptable salt thereof:

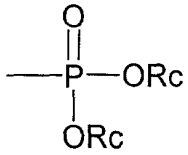


(Ib)

wherein

B is chosen from a purine, a pyrimidine or an analogue thereof;

Ra is chosen from H, monophosphate, diphosphate, triphosphate, carbonyl substituted with a C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{6-10} aryl, and



wherein each **Rc** are independently chosen from H, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{6-10} aryl and an hydroxy protecting group; and

Z is **ORb**, wherein **Rb** is chosen from of H, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6} acyl, or an hydroxy protecting group

D_1 and D_2 are independently selected from N_3, F, or H , D_1 and D_2 can also be joined to be chosen from C_3-cycloalkyl, $-=CH_2$, or $-=CF_2$,;

with the proviso that when **B** is adenine, **Z** is **ORb**, D_1 is H, D_2 is H and **Rb** is H, **Ra** is not triphosphate or H.

2. A method according to claim 1 wherein **Z** is OH.

3. A method according to claim 2 wherein D_1 is H and D_2 is F.

4. A method according to claim 2 wherein **Ra** is chosen from H, monophosphate, diphosphate, triphosphate.

5. A method according to claim 2 wherein **Ra** is triphosphate.

6. A method according to claim 2 wherein **Ra** is H.

7. A method according to claim 3 wherein **Ra** is chosen from H, monophosphate, diphosphate, triphosphate.

8. A method according to claim 3 wherein **Ra** is triphosphate.

9. A method according to claim 3 wherein **Ra** is H.

10. A method according to claim 2 wherein **B** is chosen from adenin-9-yl, guanin-9-yl, inosin-9-yl, 2-amino-purin-9-yl, 2-amino-6-chloro-purin-9-yl, 2-6-diamino-purin-9-yl, thymin-1-yl, cytosin-1-yl, uracil-1-yl, 3-carboxamido-1,2,4-triazol-1-yl, 3-deaza-adenin-9-yl, 3-deaza-guanin-9-yl, 3-deaza-inosin-9-yl, 3-deaza-2-amino-purin-9-yl, 3-deaza-2-amino-6-chloro-purin-9-yl 3-deaza-2-6-diamino-purin-9-yl, 7-deaza-adenin-9-yl, 7-deaza-guanin-9-yl, 7-deaza-inosin-9-yl, 7-deaza-2-amino-purin-9-yl, 7-deaza-2-amino-6-chloro-purin-9-yl, 7-deaza-2-6-diamino-purin-9-yl, 7-deaza-8-aza-adenin-9-yl, 7-deaza-8-aza-guanin-9-yl, 7-deaza-8-aza-inosin-9-yl, 7-deaza-8-aza-2-amino-purin-9-

yl, 7-deaza-8-aza-2-amino-6-chloro-purin-9-yl, 7-deaza-8-aza-2-6-diamino-purin-9-yl, 8-aza-adenin-9-yl, 8-aza-guanin-9-yl, 8-aza-inosin-9-yl, 8-aza-2-amino-purin-9-yl, 8-aza-2-amino-6-chloro-purin-9-yl, 8-aza-2-6-diamino-purin-9-yl, 5-aza-thymin-1-yl, 5-aza-cytosin-1-yl, 5-aza-uracil-1-yl, 6-aza-thymin-1-yl, 6-aza-cytosin-1-yl, 6-aza-uracil-1-yl; each of which is unsubstituted or substituted by at least one of NHR_3, C_{1-6}alkyl, $-OC_{1-6}$alkyl, Br, Cl, F, I or OH, wherein R_3 is H, C_{1-6}alkyl or C_{1-6}acyl.

11. A method according to claim 3 wherein **B** is chosen from adenin-9-yl, guanin-9-yl, inosin-9-yl, 2-amino-purin-9-yl, 2-amino-6-chloro-purin-9-yl, 2-6-diamino-purin-9-yl, thymin-1-yl, cytosin-1-yl, uracil-1-yl, 3-carboxamido-1,2,4-triazol-1-yl, 3-deaza-adenin-9-yl, 3-deaza-guanin-9-yl, 3-deaza-inosin-9-yl, 3-deaza-2-amino-purin-9-yl, 3-deaza-2-amino-6-chloro-purin-9-yl 3-deaza-2-6-diamino-purin-9-yl, 7-deaza-adenin-9-yl, 7-deaza-guanin-9-yl, 7-deaza-inosin-9-yl, 7-deaza-2-amino-purin-9-yl, 7-deaza-2-amino-6-chloro-purin-9-yl, 7-deaza-2-6-diamino-purin-9-yl, 7-deaza-8-aza-adenin-9-yl, 7-deaza-8-aza-guanin-9-yl, 7-deaza-8-aza-inosin-9-yl, 7-deaza-8-aza-2-amino-purin-9-yl, 7-deaza-8-aza-2-amino-6-chloro-purin-9-yl, 7-deaza-8-aza-2-6-diamino-purin-9-yl, 8-aza-adenin-9-yl, 8-aza-guanin-9-yl, 8-aza-inosin-9-yl, 8-aza-2-amino-purin-9-yl, 8-aza-2-amino-6-chloro-purin-9-yl, 8-aza-2-6-diamino-purin-9-yl, 5-aza-thymin-1-yl, 5-aza-cytosin-1-yl, 5-aza-uracil-1-yl, 6-aza-thymin-1-yl, 6-aza-cytosin-1-yl, 6-aza-uracil-1-yl; each of which is unsubstituted or substituted by at least one of NHR_3, C_{1-6}alkyl, $-OC_{1-6}$alkyl, Br, Cl, F, I or OH, wherein R_3 is H, C_{1-6}alkyl or C_{1-6}acyl.

12. A method according to claim 2 wherein **B** is chosen from adenin-9-yl, guanin-9-yl, inosin-9-yl, 2-amino-purin-9-yl, 2-amino-6-chloro-purin-9-yl, 2-6-diamino-purin-9-yl, thymin-1-yl, cytosin-1-yl, 5-fluoro-cytosin-1-yl, uracil-1-yl, 5-fluorouracil or 1,2,4-triazole-3-carboxamide base (ribarivin base).

13. A method according to claim 3 wherein **B** is chosen from adenin-9-yl, guanin-9-yl, inosin-9-yl, 2-amino-purin-9-yl, 2-amino-6-chloro-purin-9-yl, 2-6-diamino-purin-9-yl, thymin-1-yl, cytosin-1-yl, 5-fluoro-cytosin-1-yl, uracil-1-yl, 5-fluorouracil or 1,2,4-triazole-3-carboxamide base (ribarivin base).

14. A method according to claim 1 wherein the compound of formula I is chosen from:

Compound #1:3'-deoxycytidine;
Compound #2: 3'-deoxycytidine-5'triphosphate;
Compound #3:5-Fluoro-3'-deoxycytidine;
Compound #4:5-Fluoro-3'-deoxycytidine-5'triphosphate;
Compound #5:3'-deoxyuridine;
Compound #6:3'-deoxyuridine-5'triphosphate;
Compound #7:5-Fluoro-3'-deoxyuridine;
Compound #8:5-Fluoro-3'-deoxyuridine-5'triphosphate;
Compound #9:3'-deoxythymidine;
Compound #10:3'-deoxythymidine-5'triphosphate;
Compound #11:3'-deoxyguanosine;
Compound #12:3'-deoxyguanosine-5'triphosphate;
Compound #13:2-N-acetyl-3'-deoxyguanosine;
Compound #14:2-N-acetyl-3'-deoxyguanosine-5'triphosphate;

Compound #15:5-Methyl-3'-deoxycytidine;

Compound #16:5-Methyl-3'-deoxycytidine-5'triphosphate;

Compound #17:5-Iodo-3'-deoxycytidine;

Compound #18:5-Iodo-3'-deoxycytidine-5'triphosphate;

Compound #19:5-Chloro-3'-deoxycytidine;

Compound #20:5-Chloro-3'-deoxycytidine-5'triphosphate;

Compound #21:3'-fluoro-3'-deoxyguanosine;

Compound #22:3'-fluoro-3'-deoxyguanosine -5'triphosphate;

Compound #23:3'-fluoro 3'-deoxycytidine;

Compound #24:3'-fluoro 3'-deoxycytidine-5'triphosphate;

Compound #25:5-Iodo-3'-deoxycytidine;

Compound #26:5-Iodo-3'-deoxycytidine-5'triphosphate;

Compound #27:5-Chloro -3'-deoxyuridine;

Compound #28:5-Chloro -3'-deoxyuridine-5'triphosphate;

Compound #29:5-Bromo -3'-deoxyuridine;

Compound #30:5-Bromo -3'-deoxyuridine-5'triphosphate;

Compound #31:6-Chloro-3'-deoxyguanosine;

Compound #32:6-Chloro -3'-deoxyguanosine -5'triphosphate;

Compound #33:3'-spirocyclopropyl-3'-deoxyguanosine;

Compound #34:3'-spirocyclopropyl-3'-deoxyguanosine -5'triphosphate;

Compound #35:3'-difluoro-spirocyclopropyl-3'-deoxyguanosine;

Compound #36:3'-difluoro-spirocyclopropyl-3'-deoxyguanosine -5'triphosphate;

Compound #37:3'-methylene-3'-deoxyguanosine;

Compound #38:3'-methylene-3'-deoxyguanosine -5'triphosphate;

Compound #39:3'-difluromethylene 3'-deoxyguanosine;

Compound #40:3'-difluromethylene 3'-deoxyguanosine -5'triphosphate;

Compound #41:3'-spirocyclopropyl-3'-deoxycytidine;

Compound #42:3'-spirocyclopropyl-3'- deoxycytidine -5'triphosphate;

Compound #43:3'-difluoro-spirocyclopropyl-3'- deoxycytidine;

Compound #44:3'- difluoro-spirocyclopropyl-3'- deoxycytidine -5'triphosphate;

Compound #45:3'-methylene-3'- deoxycytidine;

Compound #46:3'-methylene-3'- deoxycytidine -5'triphosphate;

Compound #47:3'-difluromethylene 3'- deoxycytidine;

Compound #48:3'-difluromethylene 3'- deoxycytidine - 5'triphosphate;

Compound #49:9-β-D-xylofuranosyl-guanosine;

Compound #50:9-β-D-xylofuranosyl-guanosine -5'triphosphate;

Compound #51:9-β-D-xylofuranosyl-cytidine;

Compound #52:9-β-D-xylofuranosyl-cytidine -5'triphosphate;

Compound #53: 3'-azido-3'- deoxycytidine;

Compound #54:3'-azido-3'- deoxycytidine 5'triphosphate;or a pharmaceutically acceptable salt thereof.

15. The method according to claim 1 wherein said compound is used in combination with at least one further therapeutic agent chosen from interferon (IFN), interferon α-2a, interferon α-2b, consensus interferon (CIFN), ribavirin, amantadine, rimantadine, interleukine-12, ursodeoxycholic acid (UDCA), glycyrrhizin and silybum marianum.

16. The method according to claim 2 wherein said compound is used in combination with at least one further therapeutic agent chosen from interferon (IFN), interferon α-2a, interferon α-2b, consensus interferon (CIFN), ribavirin, amantadine, rimantadine, interleukine-12, ursodeoxycholic acid (UDCA), glycyrrhizin and silybum marianum.

17. The method according to claim 3 wherein said compound is used in combination with at least one further therapeutic agent chosen from interferon (IFN), interferon α-2a, interferon α-2b, consensus interferon (CIFN), ribavirin, amantadine, rimantadine, interleukine-12, ursodeoxycholic acid (UDCA), glycyrrhizin and silybum marianum.

18. The method according to claim 14 wherein said compound is used in combination with at least one further therapeutic agent chosen from interferon (IFN), interferon α-2a, interferon α-2b, consensus interferon (CIFN), ribavirin, amantadine, rimantadine, interleukine-12, ursodeoxycholic acid (UDCA), glycyrrhizin and silybum marianum.